CLAIMS

1. A coding apparatus comprising:

a coder which encodes transmission data and outputs systematic bits and parity bits;

a modulator that modulates the output systematic bits and parity bits in mutually different modulation schemes; and

a transmitter that transmits the modulated systematic bits and parity bits from respective antennas.

2. The coding apparatus according to claim 1, wherein the modulator has:

a modulation scheme instructor that applies different modulation schemes to the systematic bits and parity bits;

a bit arrangement determiner that determines bit arrangements of the systematic bits and the parity bits according to the applied modulation schemes; and

a mapping section that performs symbol mapping on the systematic bits and the parity bits with the determined bit arrangements.

3. The coding apparatus according to claim 2, wherein the modulation scheme instructor applies a modulation scheme with a larger modulation M-ary number to the parity bits than in the systematic bits, and

the bit arrangement determiner determines a bit arrangement where the parity bits are arranged on the in-phase axis and the quadrature axis.

4. The coding apparatus according to claim 2, wherein the coder outputs a plurality of parity bits for one systematic bit, and

the bit arrangement determiner determines different bit arrangements for the plurality of parity bits.

5. The coding apparatus according to claim 2, wherein the modulator further has an arrangement axis exchanger that exchanges arrangement axes on coordinates to perform bit arrangements determined in the bit arrangement determiner, and

the mapping section performs symbol mapping on the systematic bits and the parity bits with bit arrangements on the coordinates where the arrangement axes are exchanged.

6. The coding apparatus according to claim 2, further comprising a detector that detects the number of retransmission times of transmission data, and

wherein the bit arrangement determiner changes bit arrangements of the systematic bits and the parity bits corresponding to the detected number of retransmission times.

7. A coding method comprising the steps of:

encoding transmission data to output systematic bits and parity bits;

modulating the output systematic bits and parity bits in mutually different modulation schemes; and

transmitting the modulated systematic bits and

parity bits from respective antennas.